

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

1-48. (Canceled)

49. (Withdrawn) A method for treatment of a tissue sample in an automated staining system comprising the steps of:

providing a slide having said tissue sample disposed thereon;

immersing said tissue sample on said slide in at least one fluid, said at least one fluid facilitating the execution of at least one pre-treatment operation on said tissue sample;

separating said tissue sample from said at least one fluid; and

performing, with said slide in a substantially horizontal disposition, an automated staining operation on said tissue sample on said slide.

50. (Withdrawn) A method according to claim 49 wherein the at least one pretreatment operation comprises removal of an embedding medium from said tissue sample.

51. (Withdrawn) A method according to claim 50 wherein the embedding medim is paraffin.

52. (Withdrawn) A method according to claim 49 wherein the at least one pretreatment operation comprises a target retrieval operation.

53. (Withdrawn) A method according to claim 49 wherein the at least one pretreatment operation comprises a re-hydration of said tissue sample.

54. (Withdrawn) A method according to claim 49 wherein the at least one pretreatment operation comprises both removal of an embedding medium from said tissue sample and a target retrieval operation.

55. (Withdrawn) A method according to claim 49 wherein the at least one pretreatment operation comprises a target retrieval operation, removal of an embedding medium from said tissue sample and re-hydration of said tissue sample.

56. (Withdrawn) A method according to claim 49 further comprising the step of heating said tissue sample during the immersing.

57. (Withdrawn) A method according to claim 49, wherein the immersing and separating steps comprise the steps of:

immersing said tissue sample on said slide in a first fluid, said first fluid facilitating the execution of a first pre-treatment operation on said tissue sample;
separating said tissue sample from said first fluid;
immersing said tissue sample on said slide in a second fluid, said second

fluid facilitating the execution of a second pre-treatment operation on said tissue sample; and

separating said tissue sample from said second fluid.

58. (Withdrawn) A method according to claim 57, wherein the first pre-treatment operation comprises removal of an embedding medium from said tissue sample and the second pre-treatment operation comprises a target retrieval operation.

59. (Withdrawn) A method according to claim 49 wherein said step of providing a slide having a tissue sample comprises the step of providing said slide in a slide rack.

60. (Withdrawn) A method according to claim 49, further comprising the step, after the providing step and prior to the immersing step, of rotating said at least one slide having said tissue sample to a substantially vertical disposition, such that the immersing step comprises immersing said tissue sample on said substantially vertical slide into said at least one fluid.

61. (Withdrawn) A method according to claim 49 wherein said step of immersing said tissue sample on said slide in at least one fluid comprises the step of immersing said slide having said tissue sample into said at least one fluid contained within a fluid containment element.

62. (Withdrawn) A method according to claim 61 wherein said step of providing a slide having said tissue sample disposed thereon comprises the step of providing a plurality of slides in a slide rack, each of at least two of said slides having a respective tissue sample disposed thereon.

63. (Withdrawn) A method according to claim 62 wherein said step of immersing said slide into said at least one fluid comprises the step of lowering said slide rack into said first fluid within said fluid containment element.

64. (Withdrawn) A method according to claim 61 and further comprising the step of supplying a processing liquid from at least one supply tank to said fluid containment element.

65. (Withdrawn) A method according to claim 61 and further comprising the step of filling and draining said fluid containment element of fluid.

66. (Withdrawn) A method according to claim 65 and further comprising the step of transferring liquid from a supply tank to a transfer tank to said fluid containment element.

67. (Withdrawn) A method according to claim 49, wherein immersing and separating steps comprise the steps of:

immersing said slide having said tissue sample into a first fluid contained within a fluid containment element, said first fluid facilitating the execution of a first pre-treatment operation on said tissue sample;

draining said first fluid from said fluid containment element;

filling said fluid containment element with a second fluid, said second fluid facilitating the execution of a second pre-treatment operation on said tissue sample; and

draining said second fluid from said fluid containment element.

68. (Withdrawn) A method according to claim 67, wherein the first pre-treatment operation comprises removal of an embedding medium from said tissue sample and the second pre-treatment operation comprises a target retrieval operation.

69. (Currently Amended) An automatic stainer system for staining at least one tissue sample, comprising:

a slide rack including at least one slide having said at least one tissue sample disposed thereon;

at least one reagent for application to said at least one tissue sample during a staining operation performed on said at least one tissue sample;

at least one fluid containment element with fluid for application to said at least one tissue sample during at least one pre-treatment operation performed on said at least one tissue sample prior to the staining operation;

~~a sample immerser element including a slide immerser element~~ elevator for ~~submerging~~ lowering the slide rack with a substantially vertically disposed slide with said at least one tissue sample, ~~in said at least one fluid~~ and submerging the slide in the fluid containment element, the slide remaining vertically disposed when submerged; and

a reagent application element adapted to apply said at least one reagent to said at least one tissue sample with said slide disposed substantially horizontally.

70. (Currently Amended) [[A]] The system according to claim 69, wherein said at least one reagent comprises at least two reagents arranged in a sequence according to a staining protocol.

71. (Currently Amended) [[A]] The system according to claim 69, wherein said at least one pre-treatment operation comprises removal of an embedding medium from said at least one tissue sample.

72. (Currently Amended) [[A]] The system according to claim 69, wherein said at least one pre-treatment operation comprises target retrieval.

73. (Currently Amended) ~~[[A]]~~ The system according to claim 69, wherein said at least one pre-treatment operation comprises both target retrieval and removal of an embedding medium from said at least one tissue sample.

74. (Currently Amended) ~~[[A]]~~ The system according to claim 69, ~~[[and]]~~ further comprising:

~~at least one slide rack configured to accommodate at least one slide; and~~
a drawer assembly adapted to retract from said system, wherein said drawer assembly comprises ~~at least one~~ the slide rack.

75-76. (Canceled)

77. (Currently Amended) ~~[[A]]~~ The system according to claim ~~[[76]]~~ 69, further comprising:

a slide positioner element adapted to rotate said slide to ~~[[a]]~~ the substantially vertical disposition for application of said at least one fluid to said at least one tissue sample and into ~~[[a]]~~ the substantially horizontal disposition for application of said at least one reagent to said at least one tissue sample.

78. (Currently Amended) ~~[[A]]~~ The system according to claim ~~[[75]]~~ 69, wherein said fluid containment element comprises a heating member.

79. (Currently Amended) ~~[[A]]~~ The system according to claim ~~75~~ and 69,
further comprising:

a pneumatic element adapted to transfer liquid from a supply tank to a transfer tank and from said transfer tank to said fluid containment element; and

a drain element adapted to remove liquid from said fluid containment element to said transfer tank and from said transfer tank to a waste collection tank.

80-81. (Canceled)

82. (Currently Amended) ~~[[A]]~~ The system according to claim ~~[[81]]~~ 74,
wherein said drawer assembly is adapted to cooperate with said fluid containment element.

83. (Currently Amended) ~~[[A]]~~ The system according to claim 82, wherein said drawer assembly comprises a plurality of said drawer assemblies, each adapted to cooperate with said fluid containment element, at least one transfer tank, a supply tank, and at least one waste tank.

84. (Withdrawn) A method of treatment of a biological sample accommodated on a slide in an automated staining system, said method comprising the steps of:

providing a slide carrying a biological sample in a predetermined slide location in a slide rack, said slide being provided in a substantially horizontal position in a slide holder of said slide rack;

rotating said slide to a substantially vertical position by causing pivoting means of said slide holder to pivot from a substantially horizontal slide position to a substantially vertical slide position;

immersing said biological sample accommodated on said substantially vertically oriented slide into a processing tank for a predetermined processing time;

removing the vertically oriented slide from the processing tank after said predetermined processing time; and

rotating said slide to a substantially horizontal position by pivoting said pivoting means of said slide holder from said substantially vertical slide position to said substantially horizontal slide position.

85. (Withdrawn) A method according to claim 84, wherein a plurality of slides are provided in a slide rack, and wherein the slides are individually pivotable in pivotable slide clips, which are pivotable between said horizontal slide position and said vertical slide position.

86. (Currently Amended) An automatic stainer system for staining at least one tissue sample, comprising:

a slide rack including at least one slide having said at least one tissue sample disposed thereon;

at least one reagent for application to said at least one tissue sample during a staining operation performed on said at least one tissue sample;

at least one fluid containment element with fluid for application to said at least one tissue sample during at least one pre-treatment operation performed on said at least one tissue sample prior to the staining operation, wherein the at least one pre-treatment operation is chosen from the group consisting of target retrieval and de-paraffinization;

~~a sample immerser element including a slide immerser element~~ elevator for ~~submerging~~ lowering the slide rack with a substantially vertically disposed slide with said at least one tissue sample, ~~in said at least one fluid~~ and submerging the slide in the fluid containment element, the slide remaining vertically disposed when submerged; and

a reagent application element adapted to apply said at least one reagent to said at least one tissue sample with said slide disposed substantially horizontally.

87. (Canceled)

88. (Currently Amended) [[An]] The automatic stainer system according to claim [[87]] 86, wherein the fluid containment element comprises a dip tank.

89. (Currently Amended) [[An]] The automatic stainer system according to claim [[87]] 86, wherein said fluid containment element comprises a heating member adapted to heat the at least one fluid.

90. (Canceled)

91. (Withdrawn) A method for treatment of a tissue sample in an automated staining system comprising the steps of:

providing a slide having said tissue sample disposed thereon;

immersing said tissue sample on said slide in at least one fluid, said at least one fluid facilitating the execution of at least one pre-treatment operation on said tissue sample, said at least one pre-treatment operation chosen from the group consisting of target retrieval and de-paraffinization;

separating said tissue sample from said at least one fluid; and

performing, with said slide in a substantially horizontal disposition, an automated staining operation on said tissue sample on said slide.

92. (Withdrawn) A method for treatment of a tissue sample in an automated staining system according to claim 91, further comprising the step, after the providing step and prior to the immersing step, of disposing said slide on a slide rack configured to accommodate a plurality of slides.

93. (Withdrawn) A method for treatment of a tissue sample in an automated staining system according to claim 92, wherein the step of immersing said tissue sample on said slide in at least one fluid comprises the step of immersing said slide rack in said at least one fluid.

94. (Withdrawn) A method for treatment of a tissue sample in an automated staining system according to claim 93, wherein the step of immersing said slide rack in said at least one fluid comprises the step of lowering said slide rack into a fluid containment element having said at least one fluid therein, such that a surface of said slide having said tissue sample disposed thereon is oriented substantially vertically during the immersing.

95. (Withdrawn) A method for treatment of a tissue sample in an automated staining system according to claim 91, further comprising the step of heating said at least one fluid so as to facilitate the execution of said least one pre-treatment operation.

96. (Withdrawn) An automatic stainer system for staining at least one tissue sample disposed on a portion of a slide, the system comprising:

a slide holder adapted to hold said slide, said slide holder having rotating means for rotating said slide held on said slide holder;

a processing tank for containing at least one fluid for executing a pretreatment operation on said at least one tissue sample, said pre-treatment operation being chosen from the group consisting of target retrieval and de-paraffinization; and

an immersing element adapted to immerse said portion of said slide held by said slide holder into said at least one fluid for a predetermined processing time and to remove said portion of said slide from said at least one fluid after said predetermined processing time,

wherein the rotating means is adapted to rotate said slide on said slide holder to a substantially vertical disposition prior to said predetermined processing time and to a substantially horizontal disposition after said predetermined processing time.

97. (Withdrawn) An automatic stainer system according to claim 96, further comprising:

a slide rack configured to accommodate said slide holder and a plurality of other slide holders, each of said other slide holders adapted to hold a respective one of a plurality of other slides, each of said slide holders having rotating means for rotating said respective other slide.

98. (Withdrawn) An automatic stainer system according to claim 97, wherein each of said slide holders is a pivotable slide clip.